

CLAIMS

1. A method of thermally processing a substrate in a reactor comprising a radiant heat source, comprising the steps of:
disposing a substrate to be thermally processed on a front side to form features therein with said front side facing said radiant heat source; and
thermally monitoring a back side of said wafer opposite said front side.
2. The method of claim 1, wherein said thermally monitoring step includes measuring temperatures at a plurality of radial positions relative to a center of said substrate.
3. The method of claim 1, wherein said disposing includes supporting said substrate with a peripheral fixture extending no further inward than an edge exclusion zone of said substrate.
4. The method of claim 3, wherein said edge exclusion zone has a width of no more than 3mm.
5. The method of claim 1, wherein said substrate is disposed with said front side facing downwardly.
6. The method of claim 1, wherein said substrate is disposed with said front side facing upwardly.
7. The method of claim 1, further comprising reflecting heat emitted from said back side of said substrate back to said back side across a radiation cavity.
8. A method of thermally processing a substrate in a reactor comprising a radiant heat source in opposition to a reflector extending parallel to a surface of said substrate and facing said surface over substantially all of said substrate, comprising the step of disposing a

substrate to be thermally processed on a front side to form features therein with said front side facing said radiant heat source, whereby said reflector reflects radiant energy produced in said substrate by said radiant heat source and emitted from a back side of said opposite said front side back to said back side.

9. The method of claim 8, further comprising thermally monitoring a plurality of positions on said front side.

10. The method of claim 8, wherein said substrate is oriented with said front side facing upwardly.

11. A thermal processing apparatus, comprising:
a radiant heat source for directing radiant energy in a first direction;
means for holding a wafer with a back side thereof facing said radiant heating apparatus opposite said first direction, a front side of said substrate opposite said back side being processible in said thermal processing apparatus to form features on said front side;
and
a reflector disposed on a side of said wafer facing said front side to reflect back to said back side radiation produced by said radiant heat source and emitted from said back side.

12. The apparatus of claim 11, wherein said radiant heat source is disposed above said reflector.

13. The apparatus of claim 12, wherein said holding means overlaps said front side only within an edge exclusion zone of said substrate.

14. The apparatus of claim 13, wherein said edge exclusion zone extends no further than 3mm from an edge of said substrate.

15. The apparatus of claim 11, further comprising a detachable holding member

capable of holding said substrate from a top side thereof.

16. The apparatus of claim 11, wherein said radiant heat source is disposed below said reflector.

17. The apparatus of claim 11, further comprising a peripheral fixture supporting said substrate at its periphery and extending no farther inward than an edge exclusion zone of said wafer.

18. The apparatus of claim 17, wherein said edge exclusion zone has a width of no more than 3mm.

19. The apparatus of claim 11, further comprising a plurality of thermal monitors having view ports directed at said front side through apertures in said reflector.

20. A thermal processing apparatus, comprising:
a radiant heat source directing radiant energy upwardly;
a reflector disposed above said radiant heat source; and
a support for holding a substrate with a processing side facing said reflector.

21. The apparatus of claim 20, wherein said support comprises a ring supporting a peripheral portion of said substrate.

22. The apparatus of claim 20, wherein said reflector extends generally horizontally over a substantial portion of said radiant heat source.

23. The apparatus of claim 20, wherein said reflector extends over an area greater than that of said substrate.